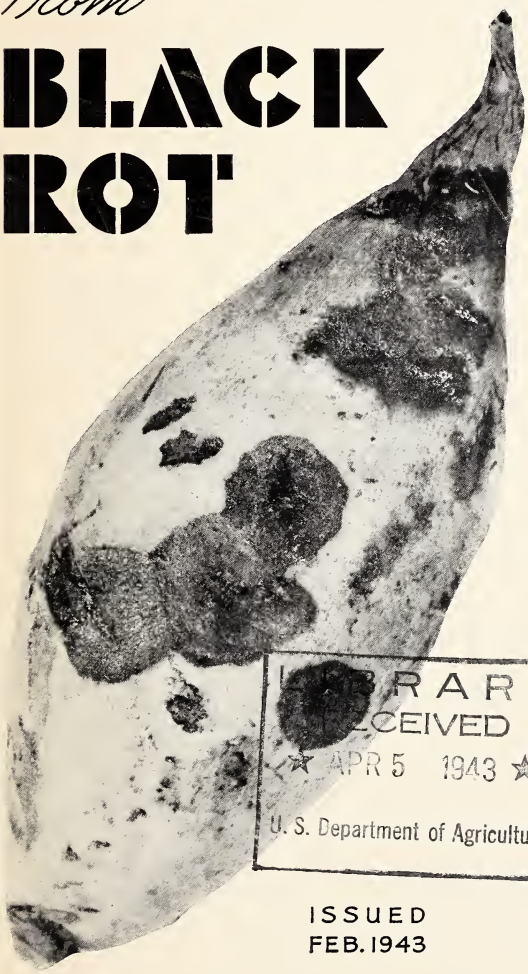
Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

Ag84Aw
no. 27
cop. 5

Saving SWEETPOTATOES from BLACK ROT



LIBRARY
RECEIVED
APR 5 1943
U. S. Department of Agriculture

ISSUED
FEB. 1943

U.S. DEPARTMENT of AGRICULTURE

AWI-27

Black Rot Wastes An Essential Crop

SWEETPOTATOES, an essential food crop and also a domestic source of starch, are severely damaged by the black rot fungus—the cause of a disease that, unless controlled, results in great waste. One Maryland farmer, for example, lost 2,000 out of 3,000 bushels in January 1943, when black rot spread in his storage house. During wartime such wastes from disease as well as from other causes must, of course, be avoided.

Since black rot, or "scab," as it is sometimes called, is one of the worst fungus diseases of sweetpotatoes, the crop should be protected from it. This disease injures the plants in the hotbed and in the field. It also causes damage to the roots in storage. Infected sweetpotatoes are bitter and unfit for food.

The losses caused by this disease were very heavy before 1920, when an intensive program for its control was launched. At that time methods of control were recommended to the farmers. As a result the losses were reduced from about 23 percent in 1920 to about 4 percent in 1923. They remained low for several years. In 1929 the losses began to increase, evidently because of the failure of many farmers to continue to practice the methods of control from which they had derived so much benefit. Sweetpotato growers are still suffering heavy losses that they could avoid.

Typical symptoms of black rot are shown in the illustration on the cover.

This pamphlet was written by L. L. Harter, senior pathologist, Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, Agricultural Research Administration, and R. J. Haskell, senior plant pathologist, Extension Service.

Black Rot Disease Is Easy To Control

The black rot fungus has no geographical barriers, and no immune varieties of sweetpotato are known. However, the disease is easy to control. All that is necessary is to practice every year methods that are already known.

Control Is Part of Hotbed Preparation

Black rot control should be a part of the hotbed preparation. If the black rot occurs in the crop, remove the soil, sand, manure, etc., from the hotbed before the sweetpotatoes are bedded in the spring. All rotted sweetpotatoes and any other debris about the framework should be raked together, carted away, and burned. Never haul this plant refuse to the field or dump it on the manure pile to compost.

The framework of the hotbed should be thoroughly sprinkled with formaldehyde, 1 pint in 30 gallons of water, or with a solution of borax made by dissolving 6 pounds in 30 gallons of water. Formaldehyde, which is essential in war industries, may not be available. Borax can usually be purchased at the grocery store.

If possible, obtain the soil or sand for renewal of the hotbed from uncultivated ground after 3 or 4 inches of the surface soil has been removed. Soil should not be taken from a cultivated field where sweetpotatoes have been grown.

Treat Seed Potatoes To Kill the Fungus

Treating the seed sweetpotatoes is an effective control measure. Select the seed potatoes at the time of bedding. Those with wounds or decayed spots should be

discarded. This operation should be carefully and thoroughly done. The sweetpotatoes selected for seed should then be disinfected by immersing them for 10 minutes in a solution of borax at the strength stated previously, or in a solution of corrosive sublimate (mercuric chloride, mercury bichloride) containing 1 ounce in 8 gallons of water. Dissolve the corrosive sublimate first in a small quantity of hot water. The sweetpotatoes should be bedded immediately after treatment. Rinsing is not necessary.

The borax solution need not be renewed. If the corrosive sublimate solution is used, about two-fifths of an ounce of the crystals dissolved in a little hot water should be added after treatment of about 10 bushels; then the quantity of solution should be made up to the original volume by adding water. After treating 50 bushels, discard the solution and start with a new one.

Corrosive sublimate is very poisonous. Any sweetpotatoes treated with either corrosive sublimate or borax should not be used as food or fed to animals. The solution remaining after the treatment with either material should be carefully disposed of or kept out of the reach of children and animals.

Disinfection will destroy the spores, or germs, adhering to the sweetpotatoes, but it will not destroy those embedded in wounds or in decayed spots. The necessity for seed selection and disinfection is evident when one remembers that spores on the surface of the potatoes or embedded in wounds can germinate and infect the sprouts. The disease is carried to the field in infected sprouts.

Crop Rotation Keeps Clean Sprouts Clean

Clean sprouts are of little value if they are planted in soil where black rot occurred the previous year, because the black rot fungus may be present and infect the plants. Sprouts should be planted on land where sweetpotatoes have not been grown for 3 or 4 years. The black rot fungus does not attack any crop besides sweetpotatoes, so that any crop may be used in the rotation.

Disease in Storage Causes Heavy Waste

When the sweetpotatoes are dug, those showing symptoms of black rot should be thrown away. A few diseased potatoes may spread spores throughout the storage house and result in the infection and ultimate ruin of a large percentage of the crop. Holding the temperature of the storage house at about 55° F. and avoiding relative humidities above 90 percent help to keep black rot in check.

Black Rot Disease Spreads by Washing

The sweetpotatoes should not be washed and then stored. Washing spreads the spores of the black rot fungus, and infections result on other sweetpotatoes. Washing just before marketing is also a questionable practice. The sweetpotato shown in the illustration was washed and waxed and then stored for 24 days. Some ;mers and shippers have had disastrous ;ults from washing, as black rot caused :al loss of the sweetpotatoes so treated. :en when the washed potatoes are mar- ted before damage results, they may be tted before the consumer has time to use :m.

16—32874-1 GPO

For sale by the Superintendent of Documents, Washington, D. C. Price ents per 100.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH ADMINISTRATION
BUREAU OF PLANT INDUSTRY
WASHINGTON, D. C.

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE TO AVOID PAYMENT OF POSTAGE, $300